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ABSTRACT

This paper 1) discusses the problems encountered in preparing objectives for instructional programs; 2) describes an informal research project in which seven instructional designers working on the same project attempted to determine agreement on an objective; and 3) suggests how to prepare objectives so that difficulties can be minimized. One source of confusion, from the outset, is the variety of terms that are used interchangeably in referring to such learning outcomes as instructional objectives, learner objectives, training objectives, and performance objectives. Even authors of texts who prescribe the use of objectives disagree on the components of objectives. Perhaps the most vehemently debated issue that arises in the preparation of objectives rests in the language used within them. Untold costs and delays are predictable on most instructional design and development projects at the acceptance or review phase because of language differences between the developers and the reviewers. An informal research project in which seven instructional designers worked on the same project illustrates the divergence of agreement on acceptable objective statements even when instructional designers are working together. Suggestions for preparing objectives so that difficulties are minimized include specifying a format and language in preparing objectives before projects begin, using a checklist to evaluate the suitability of objective statements, preparing a sample test item at the same time the objective is being prepared, and requiring that persons preparing objectives be thoroughly trained to write objectives. (Author/RM)

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PREPARING INSTRUCTIONAL OBJECTIVES

AGONY OR ECSTASY?

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* The views and conclusions expressed in this paper are those of the author and do not necessarily reflect those of American Express or any other organization.

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ABSTRACT

This paper presents a discussion of the problems encountered in preparing objectives for instructional programs. It highlights the potential sources of disagreement that begin in published educational references, the components of objectives, and the language used in objectives. An attempt to determine agreement on an objective among seven instructional designers working on the same project is discussed. This attempt substantiates the divergence of agreement on acceptable objective statements even when instructional designers are working together.

The paper presents some suggestions to instructional developers as to how difficulties in preparing objectives may be minimized based on workable solutions from large-scale instructional development projects.

Instructional research provides inconclusive evidence regarding the enhancement of learning through the use of objectives (cf. Kibler & Bassett, 1977). The inconclusiveness of the research, in my opinion, is largely owing to the lack of systematic procedure; the divergence of the nature, scope, instructional design treatment and presentation of studies on the use of objectives. The research, if certainly not the majority of current applications of instructional science, continues to suggest and prescribe the use of objectives in light of conflicting opinion or evidence. These methods stipulate the preparation and use of precisely written objectives as one of the essential steps in the design and development of instructional materials. This paper addresses the lack of agreement over what constitutes an objective for instruction, useless revisions to objectives, and how some of the agony experienced during the preparation of objectives may be avoided.

What are Objectives?

Instructional science is similar to other professions where technical terms are associated with specific philosophies, procedures, principles and rules. One of these technical terms is "objectives".

Depending on what book, what course, or what instructional development project you are involved with, you encounter one or more of the variety of terms that seem to be used interchangeably

in referring to learning outcomes. For example:

- Instructional Objectives
- Learner Objectives
- Training Objectives
- Performance Objectives
- Learning Objectives
- Behavioral Objectives
- Criterion-referenced Objectives
- Functional Objectives
- Educational Objectives
- Performance Specifications
- Measurable Objectives
- Terminal Objectives

Further, some authors differentiate between objectives for designer/developers, instructors/teachers and those for students (cf. Briggs, 1977; Harty & Monroe, 1970). It can be readily ascertained that consistency in terminology can be a source of confusion from the outset.

The Components of Objectives

The potential for confusion over objectives is not limited to what they are called. For the purpose of demonstrating the discrepancy in published materials, several references discussing or prescribing the components of objectives are shown in Table 1. A review of this table provides an illustration of how even experienced professionals apparently disagree over such a seemingly

fundamental issue as the structure or components of objectives.

Table 1. Components of Objectives as Prescribed in 13 References on on Education and Training Methods.

Author(s)	Components of Objectives for Education and Training
Anderson & Faust (1974)	1. Behavior, actions 2. Conditions 3. Standard
Armstrong, et. al. (1968)	1. Institutional variable 2. Behavioral variable 3. Instructional variable 4. Method of measurement
Boston (1972)	1. A task 2. Conditions of performance 3. Instructional variable 4. Method of measurement
Butler (1972)	1. Overt behavior 2. Conditions of limitations 3. Performance standards
Davis, et. al. (1974)	1. Terminal behavior 2. Test conditions 3. Standards
Dillman & Rahmlow (1972)	1. Level of specificity 2. Principal performance 3. Overt behavior 4. Method of process 5. Evaluation or performance criteria 6. Relevant conditions 7. Student-directed performance 8. Appropriate reading level and vocabulary

Table 1 (Cont'd.)

Author(s)	Components of Objectives for Education and Training
Gagne (1970)	1. Observable action (verb) 2. Description of stimuli being responded to 3. A word or phrase denoting the object used for action 4. A description of the class of correct response
Gagne (1974)	1. Situation 2. Outcome performance 3. Action 4. (Sometimes) additional description of tools or means
Gagne & Briggs (1974)	1. Action 2. Object 3. Situation 4. Tools and other constraints 5. Capability to be learned
Mager (1962)	1. Behavior 2. Terminal Behavior 3. Criterion
Mager (1975)	1. Performance 2. Conditions 3. Criteria
Pipe (1975)	1. Observable action 2. Conditions 3. Criteria

Table 1 (Cont'd.)

Author(s)	Components of Objectives for Education and Training
Silva (1979)	1. Material 2. Desired behavior 3. Space 4. Time 5. Ratio

The differences shown in Table 1 are evidence that even authors who prescribe the use of objectives disagree on what the components of objectives are. Some authors (i.e. Gagne & Mager) have modified earlier writings through their ongoing research. However, the overall discrepancy in definition of objective components among authors is clear.

The Language of Objectives

Perhaps the most vehemently debated issue that arises in the preparation of objectives rests in the language used within them. Untold costs and delays are predictable on most instructional design and development projects at the acceptance or review phase because of language differences between the developers and the reviewers. Both the time lost and cost increase have the potential to expand proportionately with the number of objectives in the project.

During the acceptance or review stage words are changed, deleted or otherwise modified in an effort to make certain everyone "understands" what each objective conveys. This is the point where vague or unmeasurable "action verbs" must be eliminated

like a communicable disease. Concern over acceptable action verbs is so broad that lists of acceptable "action verbs" have been developed (cf. Harty & Monroe, 1972). Those who would rather avoid the potential for such disageement in the language of objectives may perhaps find relief via "mail-order objectives"[1]. The only problem here is that these objectives should meet your project requirements and must be stated in a fashion agreeable to others who review and approve them. Therefore, the use of "mail-order objectives" may not be a solution.

Although not otherwise formally documented, I have known the language and components of objectives to cause up to a six-month delay on an originally planned 12-month project containing less than 30 terminal lesson objectives. Certainly, it is important to arrive at communicable objective statements. However, it is difficult to justify such cost increase and time delays in terms of cost-benefit to the final program result. Further, it is my experience that many of the changes ot the language of objectives are a matter of personal preference or bias and have no positive impact on design, development, or teaching products other than to increase costs and add time.

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[1] Three sources of objective lists are:

Directory of Measureable Objective Sources (DIMOS)
Education Commission of The States
1860 Lincoln Street, Suite 822
Denver, Colorado 80203

Instructional Objectives: A National Compendium
State of Florida
Department of Education
Tallahassee, Florida 32304

Instructional Objectives Exchange
10X, Box 24095
Los Angeles, California 90024

Can Anyone Agree On objective Statements?

In order to substantiate my notions concerning agreement on the components and language of objectives, I conducted some informal research. This informal research was not solely for the purpose of verifying that agreement is difficult to achieve. The primary purpose was to gain agreement on what objective statement for a particular unit of instruction would be acceptable to all concerned.

For the purpose of this informal research, a descriptive task statement from a task analysis was written as an objective in seven different versions. Then, seven Ss were asked to select the version of the objective that was most suitable to the instructional situation. The responses are shown in Table 2. It is important to note that four of the seven Ss hold doctorates and three hold masters degrees in either Psychology, Instructional Technology or Education. All degrees are from different universities in different geographical areas. Work experience of the Ss ranged from two to over thirty years. The Ss represented three private corporations and one government agency, however, all were working on the same R & D project either as designers or as part of the review team.

Table 2. Summary of Individual Preferences to Seven Objectives Prepared for a Single Task Statement.

	VERSION OF THE OBJECTIVE PREFERRED **						
Ss	A	B	C	D	E	F	G
1		X (with changes)					
2	X						
3							X (with changes)
4			X				
5				X			
6	X (with changes)						
7	* X (with changes)						

* Note: (With changes) indicates preference for accepting a version of the objective with some modification, thereby, a "new" objective statement. The changes stipulated by Ss 6 were not the same as those for Ss 7.

** Because approval was not obtained to reveal the project on which this informal research was conducted and owing to the negative image that could result, the actual objective statements are not listed here.

This attempt at agreement ended with objective Form B being modified and used to design the instruction. This objective statement was subsequently revised after two weeks of "thought" and resulted in a revision of the instructional materials. Further, some six weeks later, it was subsequently revised by direction of the R & D project review team. The training materials were written, therefore, three times.

Some suggestions to Avoid Problems

Preparing instructional objectives does not have to be a time-consuming academic, iterative ritual. Objectives are an essential tool in the total instructional process. They are, however, not an end unto themselves.

Some points that may serve to increase the probability of ecstasy and to minimize the frequent agony associated with preparing objectives include the following:

1. A referent for format and language in preparing objectives should be specified before projects begin. Whose book, or what words, is not important here. The important point is avoiding disputes over language and formats that cost and fail to enhance results.

2. The use of a checklist in evaluating the suitability of objective statements will help reduce personal bias and unnecessary revisions.
3. The preparation of a sample test item at the same time the objective is being prepared is one method for clarifying ambiguity in objectives. This method helps the developer and reviewer better understand and communicate intended learning outcomes.
4. Many times instructional objectives are confused with task performance statements. If the task can be performed during instruction, the instructional objective can be a mirror image of it. If the task cannot be performed in the classroom in the same manner as on-the-job, the instructional objective will probably not be a mirror image of the job task statement. The objective should, therefore, indicate the learning outcome
5. It is essential to remember that the authors of references on objectives or those persons with the most experience are (a) seldom tasked to write objectives for large-scale instructional programs, and (b) seldom sit on project review teams. This means, persons preparing objectives must be thoroughly trained to write objectiyes using the format specified for a particular project.

6. Often a great deal of concern is expressed over the verb of an objective in as much as it is supposedly what the student is supposed to do after the instruction. However, testing formats, such as the use of machine-scored answer sheets, will require a test behavior that may be different than what you desire for the instructional objective. For example, if the instructional objective calls for students to add two four-digit numbers, and the test requires a multiple choice answer, should you change the objective to state "add numbers by selecting the answer from four choices"? Possibly. However, is this where you can gain the most return-on-investment for the instructional program? The concern should be over teaching a generalizable math skill and not selecting the answer from four alternatives.
7. Many times instructional power (generalization) may be gained by requiring a variety of practice and test behaviors. Including all of these response behaviors in the objective statement may be over-concern for what may otherwise be a minor issue.

In Conclusion

The agony experienced in preparing instructional objectives can be minimized. The potential for this minimizing rests solely in the reasonableness of those participating in the instructional system. R & D dollars can be more efficiently used through adopting a prudent and effective process for accepting or rejecting objective statements prior to the onset of an instructional development effort.

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